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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/247,826	02/11/1999	KENICHI SHIRAISHI	0670-208	8094

31780 7590 08/11/2005

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EXAMINER	
MEI, XU	

ART UNIT	PAPER NUMBER
2644	

DATE MAILED: 08/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/247,826	SHIRAISHI ET AL.	
	Examiner	Art Unit	
	Tony M. Jacobson	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 March 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2 and 3* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2 and 3* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 2 and 3** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. (JP 53002020 A).

3. **Claims 2 and 3** have not been amended, and the basis of rejection of these claims remains the same as detailed in the prior Office action (mailed 27 October 2004).

Response to Arguments

4. Applicant's arguments filed 02 March 2005 have been fully considered but they are not persuasive.

5. In response to Applicant's argument that there is no suggestion to modify the system of Sato et al. in such a manner as to arrive at the claimed invention, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art.

See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as stated in the prior Office action, the system of Fig. 2 of Sato et al. could not be implemented as described and illustrated, because the disclosure, as translated, contradicts itself; also, the translation document does not detail all the elements that would be necessary to construct a complete working system (such as high-pass or low-pass filters at the outputs of mixers [multipliers] 11A, 11B, 14, and 15B, which are necessary to proper functioning of the system and are thus inherent thereto). However, the errors, omissions, and/or inconsistencies of that document, and their solutions would have been readily recognized by (i.e., obvious to) one of ordinary skill in the art at the time the present invention was made. Thus, the motivation to modify Sato et al. (as translated) is inherent in that document – the system simply could not be constructed to function without modification and additional elements not explicitly disclosed. The necessary modifications and additions are found within the knowledge of one of ordinary skill in the art, as also described in the prior Office action.

6. The examiner would like to clarify that the alterations made to the block diagram of Fig. 2 of Sato et al. by the examiner in Figs. E2, E3, and E6 of the prior Office action do not constitute a modification of the structure with respect to the instant claims. The alterations merely add standard symbols to the original generic blocks of the drawing in accordance with the written description of Sato et al. and provide a higher level of abstraction (i.e., a lower level of detail) by concealing elements that are not relevant to

the present claims (yet who's presence does not exclude the illustrated invention from reading on Applicants' claims, which use the transitional phrase "comprising", and thus allow for additional elements, not claimed) in an attempt to clarify the correspondence between the structure illustrated and Applicants' claims. For example, elements 5, 12, 14, 11A, 13, and 20L (in turn comprising elements 21L-26L) together comprise an oscillator ("a device for producing alternating current" as defined by Merriam Webster's Collegiate Dictionary, tenth edition) generating an oscillation signal at a frequency of ω_2, and elements 5, 12, 14, 15A, 13, and 20H (in turn comprising elements 21H-26H) together comprise an oscillator generating an oscillation signal at a frequency of ω_4. These combinations of elements are shown symbolically in the simplified block diagram of Fig. E6 of the prior Office action as simple oscillators to provide a higher level of abstraction and thus simplify understanding of the system illustrated with respect to Applicants' claims.

7. Also, the two modifications or "solutions" described by the examiner in the prior Office action are two of only four possible solutions to the self-contradictions of the disclosure of Sato et al. that occur to the examiner consistent with the block diagram of Fig. 2 and the general disclosure. In order for the invention to function as generally described, one of four sets of conditions must exist:

a. Low-side injection at multiplier (mixer) 10M so that the spectrum of signal S_{0M} is not inverted (not reversed) with respect to that of signal S_0 (S_B), requiring low-pass filtering the output of multiplier 10M to isolate the difference-frequency

component ($\omega_i = \omega_b - \omega_l$); and high-side injection at multipliers 11B and 15B so that the spectra of signals S_{0L} and S_{0H} are inverted (reversed) with respect to that of signal S_0 (S_B) as shown in Fig. 3, requiring low-pass filtering the output of multipliers 11B and 15B to isolate the difference-frequency components ($\omega_3 = \omega_2 - \omega_b$ and $\omega_5 = \omega_4 - \omega_b$); and also requiring high-pass filtering the output of multiplier 14 to isolate the sum-frequency component ($\omega_1 = 2\omega_i + \omega_l$).

b. High-side injection at multiplier 10M so that the spectrum of signal S_{0M} is inverted with respect to that of signal S_0 (S_B), requiring low-pass filtering the output of multiplier 10M to isolate the difference-frequency component ($\omega_i = \omega_l - \omega_b$); and low-side injection at multipliers 11B and 15B so that the spectra of signals S_{0L} and S_{0H} are not inverted with respect to that of S_0 (S_B) (conversely to the arrangement shown in Fig. 3, but consistent with Equations 10-12 at page 9 of the translation document), requiring low-pass filtering the output of multipliers 11B and 15B to isolate the difference-frequency components ($\omega_3 = \omega_b - \omega_2$ and $\omega_5 = \omega_b - \omega_4$); and also requiring low-pass filtering the output of multiplier 14 to isolate the difference-frequency component ($\omega_1 = \omega_l - 2\omega_i$).

c. Frequency up-conversion at multiplier 10M so that the spectrum of signal S_{0M} is not inverted with respect to that of signal S_0 (S_B), requiring high-pass filtering the output of multiplier 10M to isolate the sum-frequency component ($\omega_i = \omega_b + \omega_l$); and high-side injection at multipliers 11B and 15B so that the spectra

of signals S_{0L} and S_{0H} are inverted with respect to that of signal S_0 (S_B) as shown in Fig. 3, requiring low-pass filtering the outputs of multipliers 11B and 15B to isolate the difference-frequency components ($\omega_3 = \omega_2 - \omega_b$ and $\omega_5 = \omega_4 - \omega_b$); and also requiring low-pass filtering the output of multiplier 14 to isolate the difference-frequency component ($\omega_1 = 2\omega_i - \omega_l$).

d. High-side injection at multiplier 10M so that the spectrum of signal S_{0M} is inverted with respect to that of signal S_0 (S_B), requiring low-pass filtering the output of multiplier 10M to isolate the difference-frequency component ($\omega_i = \omega_l - \omega_b$); and frequency up-conversion at multipliers 11B and 15B so that the spectra of signals S_{0L} and S_{0H} are not inverted with respect to that of S_0 (S_B) (conversely to the arrangement shown in Fig. 3, but consistent with Equations 10-12 at page 9 of the translation document), requiring high-pass filtering the output of multipliers 11B and 15B to isolate the sum-frequency components ($\omega_3 = \omega_b + \omega_2$ and $\omega_5 = \omega_b + \omega_4$); and also requiring low-pass filtering the output of multiplier 14 to isolate the difference-frequency component ($\omega_1 = 2\omega_i - \omega_l$).

8. The first set of conditions above, "*a*", corresponds to the "first solution to the inconsistencies of Sato et al." described in the prior Office action; and the second set of conditions above, "*b*", corresponds to the "second solution" described in the prior Office action. A system consistent with the structure of the block diagram of Fig. 2 of Sato et al. is capable of performing the primary function described by Sato et al. (cancelling an

interfering signal who's spectrum partially overlaps the spectrum of a desired signal) when configured according to any of the four sets of conditions, *a-d*, detailed above. While none of these sets of conditions are explicitly disclosed by Sato et al. in a consistent manner, each is suggested by some part of the disclosure. For example, Sato et al. disclose at page 3, lines 18-19, "In Fig. 2, 1 is a high-frequency amplifier, 2 is a medium-frequency amplifier"; at page 4, lines 1-7, "... when a first broadcast wave S_B is received from a composite signal S_0 ... the above composite signal is frequency-converted so that the carrier frequency f_b [ω_b] of the above first broadcast wave S_B becomes a first frequency, e.g., a medium frequency f_i [ω_i] ..."; at page 5, line 6, "high-frequency amplifier 1"; at page 5, lines 16-18, "medium frequency f_b" [ω_b] and "... the first converted composite signal S_{0M} is taken as the first medium-frequency signal ..."; at page 6, line 1, "medium frequency f_i" [ω_i]; at page 9, line 4, "high-frequency amplifier 1"; and at page 10, line 16, "medium-frequency amplifier 2". Thus, indicating the received composite signal S_0 is frequency down converted from a high frequency to a medium frequency (i.e., $\omega_i < \omega_b$), consistent with convention in the art, wherein commercial broadcast band radio signals within a band spanning from about 525 kHz to 1715 kHz in the US (to 1615 kHz elsewhere) are frequency down-converted to a standard fixed intermediate frequency (IF) of usually 455 kHz in radio receivers. This indication is compatible with the sets of conditions *a* and *b*, above, in which products of multipliers 10M, 11B, and 15B are taken as difference-frequency components by low-pass filtering, but is incompatible with sets of conditions *c* and *d*, in which products of either multiplier 10H or multipliers 11B and 15B are taken as sum frequencies by high-pass filtering

(which inherently means frequency up-conversion). However, this indication (i.e., $\omega_i < \omega_b$) is contradicted at page 7, line 5, "sum angular frequency ω_3" and by Equation 3 at page 7 ("$\omega_3 = \omega_2 + \omega_b = \omega_i - 2\Delta\omega$") and Equation 5 at page 8 ("$\omega_5 = \omega_4 + \omega_b = \omega_i + 2\Delta\omega$"), which indicate that ω_3 and ω_5, respectively, are greater than ω_b (and thus require $\omega_i > \omega_b$, since $\omega_i > \omega_3$ according to the primary scheme of the invention and Equation 3), all of which are consistent with sets of conditions *c* and *d*, above, and inconsistent with sets of conditions *a* and *b*. Also, page 6, line 19 indicates that ω_1 (f_1) at the output of multiplier 14 is formed as a difference frequency, which is compatible with sets of conditions *b*, *c*, and *d*, above, but incompatible with set of conditions *a*. The table below summarizes a number of statements in the disclosure of Sato et al. that suggest how the invention is completed, relative to Applicants' claims:

Ref. #	Condition	Where	Compatible with set of conditions?				Direct conflict
			a	*b*	*c*	*d*	
1	$\omega_i < \omega_b$	p. 3, l. 18-19	yes	yes	no	no	4, 6
2	$\omega_1 = \lvert 2\omega_i - \omega_l \rvert$ OR $\omega_1 = 2\omega_i - \omega_l$	p. 6, l. 19-20;	no	yes	yes	yes	
3	$\omega_1 = 2\omega_i - \omega_l$	Eq. 1	no	no	yes	yes	
4	$\omega_3 = \omega_2 + \omega_b$	p. 7, l. 5; Eq. 3	no	no	no	yes	1, 5
5	$\omega_3 = \omega_2 - \omega_b$	p. 7, l. 17-20; Fig. 3	yes	no	yes	no	4, 9
6	$\omega_5 = \omega_4 + \omega_b$	Eq. 5	no	no	no	yes	1, 7
7	$\omega_5 = \omega_4 - \omega_b$	p. 8, l. 11-14; Fig. 3	yes	no	yes	no	6
8	$\omega_i = \omega_l - \omega_b$	Eq. 10	no	yes	no	yes	
9	$\omega_3 = \omega_b - \omega_2$ OR $\omega_3 = \omega_b + \omega_2$	Eq. 11	no	yes	no	yes	5
10	$\omega_5 = \omega_b - \omega_4$ OR $\omega_5 = \omega_b + \omega_4$	Eq. 12	no	yes	no	yes	7

In the table above, each "condition" is a mathematical representation of a direct consequence of a statement, although the statement may not be made as a mathematical expression or equation in the disclosure.

9. Clearly, many of these indications as to how the invention is completed are mutually contradictory, suggesting a number of different embodiments (i.e., the sets of conditions [embodiments] *a-d* detailed above). It is noted that each of the four sets of conditions described above is possible within the structure of Fig. 2 without modification of the structure illustrated, simply by choosing whether to low-pass filter or high-pass filter the outputs of multipliers 10M, 11B, 14, and 15B and choosing an appropriate frequency (ω_l) for local oscillation signal S_L. In completing the invention, the only two fundamental choices to be made are determination of an intermediate frequency ω_i (which eliminates either both of conditions *a* and *b* if $\omega_i > \omega_b$ [up-conversion], or both of conditions *c* and *d* if $\omega_i < \omega_b$ [down-conversion]) and then selecting whether the main signal S_{0M} will be spectrally inverted (as in sets of conditions *b* and *d*) or whether the cancellation signals S_{0L} and S_{0H} will be spectrally inverted (as in sets of conditions *a* and *c*). These fundamental choices force the use of either low-pass or high-pass filtering to appropriately isolate either difference-frequency or sum-frequency components, respectively, at the outputs of multipliers 10M, 14, 11B, and 15B. Then ω_l is set according to the frequency of the desired input signal ω_b to produce the desired IF frequency ω_i. (ω_l would likely be made adjustable according to convention in the art to

allow tuning any input signal within a predetermined range of input frequencies.)

10. Applicants argue that Sato et al. does not teach or suggest at least the features: first and second local oscillators, first and second multipliers, first, second, and third low-pass filters and a subtracter, wherein a carrier frequency, *fc* of an interference AM modulation wave causing neighboring interference and the oscillation frequencies (*fp1*, *fp2*) of the first and second oscillators satisfy the condition: *fp1* > *fp2*, and *fp1* - *fc* = *fc* - *fp2*. However, the system of Sato et al., modified according to common knowledge in the art, motivated by the incomplete, self-contradictory disclosure of Sato et al. (as translated) does include all these elements, as described in the prior Office action.

Specifically, with respect to claim 2 (Applicants recite "independent claim 1" in the arguments referring to these limitations; however, claim 1 is currently cancelled, and this combination of limitations is present only in claim 2), in Fig. E2 of the prior Office action (to which the only modifications are symbolic annotations to functional blocks to show their functions as explicitly described in the translation document), the first local oscillator (a device for generating an alternating current) comprises elements 5, 12, 13, 14, 15A, and 20H (which in turn comprises elements 21H-26H); the second oscillator comprises element 5; the first and second multipliers comprise elements 15B and 10M, respectively; first and second low-pass filters are inherently necessary at the outputs of multipliers 11B and 10M to remove undesired sum-frequency components and thereby isolate desired difference-frequency components, as described in the prior Office action;

and a subtracter comprising element 16, wherein a carrier frequency, $\omega_b + \Delta\omega$ (which may be named "*fc*" without the exercise of any inventive process) of an interference AM modulation wave causing neighboring interference and the oscillation frequencies ω_4 (= $\omega_b + \omega_i + 2\Delta\omega$) and ω_l (= $\omega_b - \omega_i$) (which similarly may be named *fp1* and *fp2*, respectively, without the exercise of any inventive process) of the first and second oscillators satisfy the condition: $fp1 > fp2$ ($[\omega_4 = \omega_b + \omega_i + 2\Delta\omega] > [\omega_l = \omega_b - \omega_i]$), and $fp1 - fc = fc - fp2$ ($\omega_4 - [\omega_b + \Delta\omega] = [\omega_b + \Delta\omega] - \omega_l = \omega_i + \Delta\omega$). As explained in rejection of claim 2 in the prior Office action, although Sato et al. do not disclose a low-pass filter for receiving an output of the subtracter, it was notoriously well known in the art at the time the present invention was made to provide bandpass filtering in intermediate-frequency (IF) amplifiers, such as medium-frequency amplifier 2; and it was well known in the art at the time the present invention was made to construct a bandpass filter by cascading a low-pass filter having a cut-off frequency equal to the upper passband corner frequency with a high-pass filter having a cut-off frequency equal to the desired lower passband corner frequency. Thus, such a third low-pass filter would have been obvious at the time the present invention was made.

11. Applicants argue that the present invention is unique in selecting two oscillation frequencies, *fp1* and *fp2*, that satisfy the condition: $fp1 > fp2$, and $fp1 - fc = fc - fp2$, with respect to the carrier frequency, *fc*, of the interference AM modulation wave. As described in the preceding paragraph and in the prior Office action, the oscillation frequencies ω_4 and ω_l are completely equivalent to oscillation frequencies *fp1* and *fp2*

claimed, and although Sato et al. do not explicitly describe them with respect to the carrier frequency *fc* of an interference modulation wave, the frequency [$\omega_b + \Delta\omega$] is the carrier frequency of an interference AM modulation wave in the system of Sato et al., which satisfies the relationship claimed. The assignment of the symbol "*fc*" to this frequency does not constitute invention; Applicants are merely describing the same thing in different terms, but it remains the same thing.

12. Applicants' argue that there is no suggestion or motivation, either in the references or in the knowledge generally available to one of ordinary skill in the art, to modify Sato to achieve the claimed invention; and that the prior Office action does not adequately set forth why one of ordinary skill in the art would combine the references to achieve the features of the present invention. The examiner maintains that the motivation and suggestion to modify the system of Sato et al. to arrive at the claimed invention is present in the disclosure of Sato et al. As described above and in the prior Office action, Sato et al. describe several characteristics of the system that are only obtainable in combination according to the present invention. For example, as shown in the table above, the only set of conditions that results in the intermediate frequency (IF) ["medium frequency"] ω_i being less than the input signal frequency ω_b, as indicated, for example, at page 3, lines 19-20 of the translation document (condition 1 in the table above), and according to common practice in the art as described above, while also producing the arrangement of frequencies described at page 7, lines 17-20 and page 8, lines 11-14, and illustrated in Fig. 3 (conditions 5 and 7 in the table above –

corresponding to spectral inversion of signals S_{0L} and S_{0H} relative to signal S_0) is set of conditions *a*, detailed above, which corresponds exactly to the "first solution" to the inconsistencies of Sato et al. described in the prior Office action, upon which the rejection of claim 2 is and was based.

13. Applicants argue that the "Official Action has made numerous assertions regarding the disclosure of Sato and numerous modifications to Figure 2 of Sato in order to create the entirely new Figure E6"; that "the Official Action concedes that 'the series of mixers and oscillators for generating the oscillation signals' from original Figure 2 'have been replaced with simple oscillators generating these signals directly'"; and that "The Official Action concludes that 'it would have been obvious to one of ordinary skill in the art at the time the present invention was made to make either of the above-described modifications to the system and method of Sato et al. in order to produce a properly functioning embodiment of the invention". As explained above the modifications to the block diagram of Fig. 2 of Sato et al. to arrive at the block diagram of Fig. E6 of the prior Office action do not constitute any modification of the system as it relates to Applicants' claims; the block diagram was altered to show the system at a higher level of abstraction (a lower level of detail), particularly with respect to the portion that does not relate to Applicants' claims, in order to simplify the discussion of the system relative to the claims. The simple oscillators shown supplying signals at frequencies of ω_2 and ω_4 to multipliers 11B and 15B, respectively, symbolically represent the combination of elements 5, 12, 14, 11A, and 13 and the combination of

elements 5, 12, 14, 15A, and 13, respectively, each combination of which constitutes an "oscillator" (a device for generating an alternating current). The rejections of the claims refer to the combinations of these individual elements of Fig. 2 of Sato et al, and do not rely upon Fig. E6 of the Office action, except as an aid to understanding.

14. Applicants argue, "the test for obviousness is not whether the references 'might' or 'could' have been combined or modified as asserted in the Official Action, but whether the references should have been." In this case, because the disclosure of Sato et al. is incomplete as to the details of the present claims and inconsistent in what it suggests relative thereto, the reference ***must*** be modified (actually, it must be *completed*, according to some, but contrary to other conflicting details suggested therein) in order to arrive at a working embodiment of the invention. Again, the required details are obvious in view of common knowledge in the art at the time the present invention was made.

15. Applicants argue that "there is no showing in Sato that teaches or suggests that an AM neighboring interference removing circuit comprising first and second local oscillators, first and second multipliers, first, second, and third low-pass filters and a subtractor are of any concern, or that these concerns could or should be solved by modifying Sato. Specifically, it is unclear how or why any alleged motivation discussed at pages 2-25, e.g. 'in order to produce a properly functioning embodiment of the invention' (page 16), is relevant to an AM neighboring interference removing circuit

comprising at least the above-referenced features of the present invention." The prior Office action has shown that all the features recited (consistent with Applicants' claims), except the claimed third low-pass filter, are explicitly present in the disclosure of Sato et al., and describes in the rejection of claim 2 that it was well known to construct a bandpass filter, as is inherent to the "medium frequency amplifier" 2 of Fig. 2 of Sato et al. by employing a low-pass filter cascaded with a high-pass filter. The motivation, to produce a properly functioning embodiment of the invention disclosed by Sato et al., to complete or modify that invention is relevant to an AM neighboring interference removing circuit comprising first and second local oscillators, first and second multipliers, first, second, and third low-pass filters and a subtracter because that is the disclosed purpose of the invention of Sato et al., and an obvious species of that invention includes these features, as described above and in the prior Office action.

16. Regarding Applicants' argument (generally) that the circuit configuration of Sato et al. is extremely complex, while that of Applicants is simple. The examiner points out that Applicants employ the transitional phrase "comprising", which allows for the inclusion of other elements, not claimed. Further, the examiner suggests that although Applicants have described and claimed the invention at a high level (including little detail), a similar amount of additional circuitry equivalent to that disclosed by Sato et al. would be required to form a complete, properly functioning embodiment of the invention. For example, Applicants disclosure and claims have not addressed the issue of ensuring that the phases of the signals that are being subtracted are properly aligned

with respect to each other (the function of blocks 20L and 20H of Fig. 2 of Sato et al.), which is necessary to proper functioning of the circuit, and which is not something that would occur naturally without some specialized means to control the relative phases of the local oscillation signals.

17. In response to Applicants argument that the Japan Patent Office has granted a patent to claims 2 and 3 in view of Sato et al., that is not an adequate basis for granting a US patent. The Japan Patent Office and US Patent Office currently employ different criteria for determining patentability; further, it is possible that the JPO may have not recognized the equivalence, for example due to the fact that Applicants have described and claimed the invention in terms of the frequency of an undesired signal component, while Sato et al. describes the invention in terms of the frequency of a desired signal component.

Conclusion

18. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony M. Jacobson whose telephone number is 571-272-7521. The examiner can normally be reached on M-F 11:00-7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh N. Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

VIVIAN CHIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

tmj TMJ
July 28, 2005